

REMARKS/ARGUMENTS

Claims 1 and 2 are canceled in the case. Claims 3-18 and new Claims 19-22 are active in the case. Reconsideration is respectfully requested.

The present invention relates to radiation curable compounds having capped amino groups.

Claim Amendments

Claims 1 and 2 have been amended in the form of new Claims 19 and 20, respectively, by the use of the language "consisting essentially of." Further, component (e) of the new claims has been limited to diols that have a carbon atom content of 2 to 20 atoms, as disclosed at page 16, lines 4 and 5 of the text. New Claims 21 and 22 limit the diol reactant (chain extender) to diols disclosed on page 16 of the specification. The amendment to Claim 6 is believed sufficient to clarify the meaning of the claim. Accordingly, the amendments made to the claims and the new claims do not introduce new matter into the case. Entry of the amendments and new claims into the record is respectfully requested.

Claim Rejection, 35 USC 102

Claims 1, 3-5 and 7-18 stand rejected based on 35 USC 102(b) as anticipated by Bradford et al, U. S. Patent Publication 03/83397 as further disclosed by DE 19609617. This ground of rejection is respectfully traversed.

The Bradford et al reference, as discussed previously, is relevant to the present invention as claimed insofar as it discloses a dual cure coating composition for the topcoating of surfaces to provide the same with a hardened, surface protecting coating. The coating composition is comprised of three components [0023] identified as (a1) a radiation curable material, (a2) a thermally curable binder component and (a3) a thermally curable crosslinking

component. On the other hand, the composition of the present invention as claimed does not permit the inclusion of a component which is the same as or equivalent to component (a2), since Claims 1 and 2 (new Claims 19 and 20) have been amended by incorporation of the transitional phrase "consisting essentially of" into the new claims. Component (a2) is a mandatory constituent of the composition of the reference, because it must be present in an amount of 5 to 90 % by wt of the total nonvolatile solids of the composition [0062]. The thermally curable binder (a2) component is essential, because it provides cured coated porous surfaces or articles which are substantially free of surface defects that are caused by vaporous emissions and which possess commercially desirable adhesion [0039].

Component (e) of the present claims also can not be viewed as equivalent to component (a2) of the reference. Although component (e) of the present claims is a compound that has at least two isocyanate-reactive groups, nevertheless, it is limited to diols that are as now defined in new Claims 21 and 22. These compounds are of low molecular weight, and therefore function as chain extenders, but not as binders. While diols are described as chain extenders in paragraph [0044] of the reference, nevertheless, the reference in paragraph [0052] requires that the (a2) component have a minimum number average molecular weight of 500, which is much greater than the molecular weight of the diols in dependent Claims 21 and 22 and also any diol that contains from 2 to 20 carbon atoms. Thus, a diol having the required molecular weight of 500 in the reference functions as a binder, and not as a chain extender. Accordingly, component (e) of the present claims is not equivalent to thermally curable binder component (a2) of the reference.

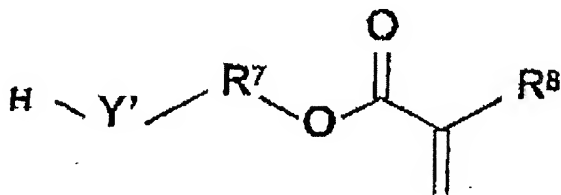
Still further, component (e) of the present claims is an optional component, whereas component (a2) of the reference is mandatory.

DE '617 does not improve upon the deficiencies of the Bradford et al publication, and withdrawal of the rejection is respectfully requested.

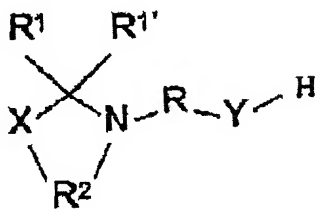
Claim Rejection, 35 USC 103

Claim 8 stand rejected based on 35 USC 103(a) as obvious over Bradford et al, U. S. Patent Publication 03/83397, further in view of DE 19609617. This ground of rejection is respectfully traversed.

Applicants first point out that the specific polyurethane that is claimed in Claim 1 (new Claim 19), is prepared by the reaction of a diisocyanate (OCN-R⁶-NCO) with a compound (b) an embodiment of which is the following compound:



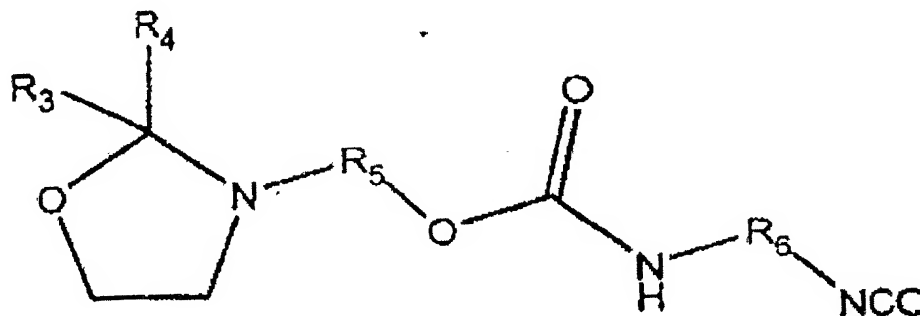
and a compound (c), an embodiment of which has the following formula:



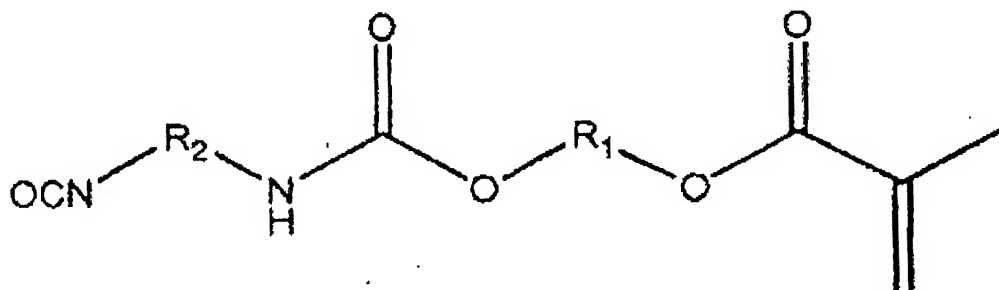
The polyurethane compound that results may react with other diisocyanate compounds which introduce allophanate groups (Z¹ and Z²) into the polyurethane compound thereby resulting in the compound of formula II in present Claim 8.

Applicants submit that the disclosure of Bradford et al does not lead one of skill in the art to the compound of formula (II) shown in Claim 8. Bradford et al discloses the reaction of a crosslinking component (a3) with a radiation curable component (a1), which is similar to component (b) of the present claims and a thermally curable binder component (a2). The publication mentions in paragraphs [0068] and [0069] that the polyisocyanate crosslinking agent may be the adduct of with an oxazolidine, which is an embodiment of component (c) of

the present claims. If the polyisocyanate crosslinking agent that is used is a diisocyanate, then the resulting adduct contains only one available isocyanate group for reaction which is not enough for the compound to serve as a crosslinking agent. Here, the Examiner suggests the following compound (B) as the adduct of the reaction as follows:



The teachings of the Bradford et al publication at this point instruct the skilled artisan to react the adduct with the binder (a1) component. However, this teaching is incompatible with the compound of formula (II) in Claim 8 since no binder component is shown in the compound of formula (II). Moreover, the publication in paragraph [0044] discloses that the binder component (a1) may be obtained by reacting the curable binder component (a1) with a chain extender, examples of which are disclosed in paragraph [0044] which include diols. Thus, a polyisocyanate crosslinker would react with the product of the reaction of the binder and a chain extender molecule. The result is not the urethane compound suggested by the Examiner in formula (A) on page 3 of the Office Action.



In fact, it is clear that a reaction of the compounds (A) and (B) that has been proposed by the Examiner does not yield a compound that is within the scope of the compound of formula (II)

of the present claims. In fact, it is clear that the Examiner is using the teachings of the present invention, in the form of the compound of formula (II) of Claim 8, to establish a case that the publication would motivate the skilled artisan to the invention of Claim 8. Applicants do not concur.

It is clear the cited DE reference does not overcome or improve upon the deficiencies of Bradford et al and withdrawal of the rejection is respectfully requested.

Claims 1-18 stand rejected based on 35 USC 103(a) as obvious over Bradford et al, U. S. Patent Publication 2003/0083397 as further disclosed by DE 19609617 in view of Arora et al, U. S. Patent 4,912,154. This ground of rejection is respectfully traversed. This ground of rejection is respectfully traversed.

The deficiencies of the Bradford et al publication above references are neither overcome nor improved by Arora. As stated previously, the Arora patent is germane to the present invention, insofar as it discloses the preparation of polyurethanes by reacting a diisocyanate with a very specific heterocyclic reactant that contains an oxazoline ring system. While the oxazoline compound shown at the bottom of column 2 of the patent satisfies the requirement of component (c) of the present claims of containing at least one isocyanate reactive group by virtue of the presence of the two methylol groups at position 4 of the oxazoline ring, the nitrogen ring atom of the compound is not a "capped" amino group as required of component (c) of the present claims. Moreover, a third reactant, which is identified as an acid functional compound such as 1,2-dihydroxypropionic acid, 2,3-dihydroxypropionic acid or the like, is not an essential reactant of the present claims from which the claimed polyurethane is made. Accordingly, the polyurethane disclosed in the patent is quite unlike that of the present invention. Withdrawal of the rejection is respectfully requested.

Claim 6 stands rejected based on 35 USC 103(a) as obvious over Bradford et al, U. S. Patent Publication 2003/0083397 as further disclosed by DE 19609617 in view of Bruchmann et al, '569. This ground of rejection is respectfully traversed. This ground of rejection is respectfully traversed.

Claim 6 is directed to the aspect of the invention of the types of capped amine groups that are present in component (c). This is a secondary aspect of the invention upon which patentability does not depend. Rather, Claim 6 depends upon an independent claim that is patentably distinguished over the primary references that have been cited. Since Claim 6 incorporates all of the aspects of independent Claim 1 (new Claim 19). Moreover, whereas the stated requirement of component (c) of the present claims is that the compound contain at least one capped amino group and that it be used with component (b) in reaction with a diisocyanate or a polyisocyanate, the disclosure of aldimines and ketimines in column 4 of the Bruchman et al patent is in the context of a one-component polyurethane coating composition that is comprised of only reactive components having blocked isocyanate-reactive groups. Compound A of the reference is one such compound. Other reactive components that have blocked isocyanate-reactive groups include aldimines and ketimines. Thus, the Bruchman et al patent does not improve upon the primary documents and withdrawal of rejection is respectfully requested.

Appln. No. 10/526,017
Reply to the Office Action of July 18, 2007

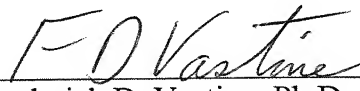
It is now believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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